A Vision and Guiding Principles for the National Air Program

A Report of the Clean Air Act Advisory Committee

Final Report – February 2009

A Vision and Guiding Principles for the National Air Program

Executive Summary

A Report of the Clean Air Act Advisory Committee

Clean air is essential to a healthy population, a healthy environment, and a healthy economy. The U.S. Environmental Protection Agency (USEPA), tribal, state, and local governments—along with partners in industry and the non-governmental organization (NGO) sector—are committed to making the air safe and healthy in every community, reducing ecosystem damage from air pollution, and doing their share to address global air quality problems.

Vision Statement

Achieve and maintain air quality that protects and enhances public health, welfare, and the environment

The statements above reflect a shared vision for the National Air Program, developed by the Clean Air Act Advisory Committee (CAAAC). The National Air Program refers to the collection of programs and activities being undertaken by federal, state, local and tribal government agencies, in concert with industry and NGO partners, to protect, manage, and improve air quality in the U.S. The CAAAC identified six guiding principles that are vital to achieving this vision:

1. Establish clear goals and manage for results and accountability
2. Use appropriate tools including innovative approaches
3. Conduct sound research and use information effectively
4. Build capacity among government partners for effective implementation
5. Build a better and broader partnership
6. Educate and involve the public

Significant progress has been made to improve air quality in the U.S. in the several decades since the Clean Air Act was first established. Despite this progress, important challenges remain to address impacts to human health, welfare, and ecological conditions posed by criteria air pollutants and air toxics. Efforts are needed to move toward a more comprehensive, integrated, multi-pollutant approach to air quality management in the U.S. In addition, climate change holds both important challenges and opportunities for the National Air Program.

The CAAAC has prepared this document to help guide and frame future efforts for the National Air Program. The CAAAC expects this document will serve two primary purposes:

1. Provide the new Administration with a clear statement of the CAAAC's vision and guiding principles for the National Air Program, complemented by a set of key recommendations for advancing this vision; and
2. Serve as a "north star" both to the CAAAC as it works to advise USEPA in the coming years and to the government, industry, and NGO partners working to implement and improve the National Air Program.

The CAAAC firmly believes that the vision and guiding principles articulated in this document are fully relevant to guide any future efforts to address climate change or to revise the Clean Air Act.

The following table summarizes key recommendations discussed in this document.

Guiding Principle	CAAAC Priority Recommendations
1. Establish Clear Goals and Manage for Results and Accountability	1.1 Strengthen Efforts to Establish and Connect Air Quality Management Goals and Desired Public Health, Ecosystem Health, Welfare, and Climate Change Outcomes. 1.2 Improve Performance Measurement Activities to Support Results-Based Management and Accountability. 1.3 Improve the Effectiveness, Efficiency, and Speed of National Air Program Processes and Activities Through Collaborative Efforts and Innovation.
2. Use Appropriate Tools Including Innovative Approaches	2.1 Expand National and Regional Control Strategies. 2.2 Develop an Integrated Multipollutant Program for Criteria and Hazardous Air Pollutants. 2.3 Rapidly Develop and Deploy Effective Programs and Activities to Encourage Energy Efficiency and Use of Renewable Energy Sources.
3. Conduct Sound Research and Use Information Effectively	3.1 Improve Emissions Measurement, Reporting, and Inventories, including Emission Factors and Estimation Methods. 3.2 Strengthen Research Related to Air Quality and its Connections to Public and Ecosystem Health, Welfare, and Climate Change Outcomes. 3.3 Expand and Improve Air-Related Monitoring. 3.4 Improve the Quality and Accessibility of Information Available to Support Air Quality Management Decision-Making.
4. Build Capacity Among Government Partners for Effective Implementation	4.1 Provide Timely Guidance and Rule Implementation Support to S/L/T Partners. 4.2 Increase Resources and Funding to Support Effective Program Implementation by Government Partners. 4.3 Invest in Efforts to Hire, Retain, and Train High Quality Staff at Government Partners in the National Air Program.
5. Build a Better and Broader Partnership	5.1 Clarify Roles and Improve Collaboration and Coordination Between USEPA and S/L/T Partners. 5.2 Strengthen and Expand Partnerships to Improve Understanding of the Connections Between Air Quality and Human Health and Ecosystem Health Outcomes. 5.3 Strengthen and Expand Partnerships to Improve Implementation of Air Emission Reduction Strategies.
6. Educate and Involve the Public	6.1 Improve the Quality and Availability of Public Information on Air Quality and Activities of the National Air Program. 6.2 Equip and Enable the Public to Productively Engage in National Air Program Decision-Making Processes. 6.3 Spur Public Action and Participation in Emissions Reduction Efforts.

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A Shared Vision for the National Air Program

"The National Air Program achieves and maintains air quality that protects and enhances public health, welfare, and the environment." This vision statement recognizes that clean air is essential to a healthy population, a healthy environment, and a healthy economy. The U.S. Environmental Protection Agency (USEPA), tribal, state, and local governments—along with partners in industry and the non-governmental organization (NGO) sector—are committed to making the air safe and healthy in every community, reducing ecosystem damage from air pollution, and doing their share to address global air quality problems.

Vision Statement

Achieve and maintain air quality that protects and enhances public health, welfare, and the environment

The statements above reflect a shared vision for the National Air Program, developed by the Clean Air Act Advisory Committee (CAAAC). The National Air Program refers to the collection of programs and activities being undertaken by federal, state, local and tribal government agencies, in concert with industry and NGO partners, to protect, manage, and improve air quality in the U.S. The CAAAC has identified six guiding principles that are vital to achieving this vision:

1. Establish clear goals and manage for results and accountability
2. Use appropriate tools including innovative approaches
3. Conduct sound research and use information effectively
4. Build capacity among government partners for effective implementation
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6. Educate and involve the public

The CAAAC believes that both existing and new initiatives related to the National Air Program should be implemented or developed in a manner that is consistent with these principles.

Purpose and History of the Vision and Guiding Principles

In January 2008, the CAAAC formed the Vision and Goals Work Group to draft a vision and set of guiding principles for the National Air Program. This document is a product of this effort to lay out a clear vision and set of guiding principles for the future of air quality management in the U.S. and to identify priority recommendations for making progress towards this vision. The CAAAC expects this *Vision and Guiding Principles for the National Air Program* document to serve two primary purposes:

1. Provide the new Administration with a clear statement of the CAAAC's vision and guiding principles for the National Air Program, complemented by a set of priority recommendations for advancing this vision; and
2. Serve as a "north star" both to the CAAAC as it works to advise USEPA in the coming years and to the government, industry, and NGO partners working to implement and improve the National Air Program.

In preparing this document, the CAAAC sought to build on and amplify ideas and recommendations developed by the CAAAC over the past several years, including recommendations in the following reports:

- Air Quality Management in the U.S. Phase I and Phase II Reports
- Advanced Coal Technology Work Group Recommendations
- Title V Task Force Recommendations
- Recommendations for Reducing Emissions from the Legacy Diesel Fleet

The CAAAC's discussions were also informed by two other important efforts over the past decade that considered the future of the U.S. air quality management system:

- The 2004 report, *Air Quality Management in the United States,* by the National Research Council of the National Academy of Sciences; and
- The December 2000 draft *Joint Statement on Vision and Goals for the National Air Program* prepared by USEPA, the National Tribal Environmental Council, the Institute for Tribal Environmental Professionals, the Environmental Council of the States, the State and Territorial Air Pollution Program Administrators (STAPPA), and the Association of Local Air Pollution Control Officials (ALAPCO).[1]

Many of the recommendations in this document are drawn from recent CAAAC work on air quality management that will improve processes and resource allocation, and enhance scientific and technical capacity. These recommendations alone, however, may not be sufficient to achieve the vision.

In this document, the CAAAC has included a set of priority recommendations which have been deemed to be most critically in need of attention from the Administration and USEPA for each of the six guiding principles for the National Air Program. By setting these priorities, the CAAAC does not intend for other recommendations previously issued by the CAAAC to be abandoned or neglected. The CAAAC, however, is sensitive to the level of resources needed to implement these recommendations and understands that USEPA and

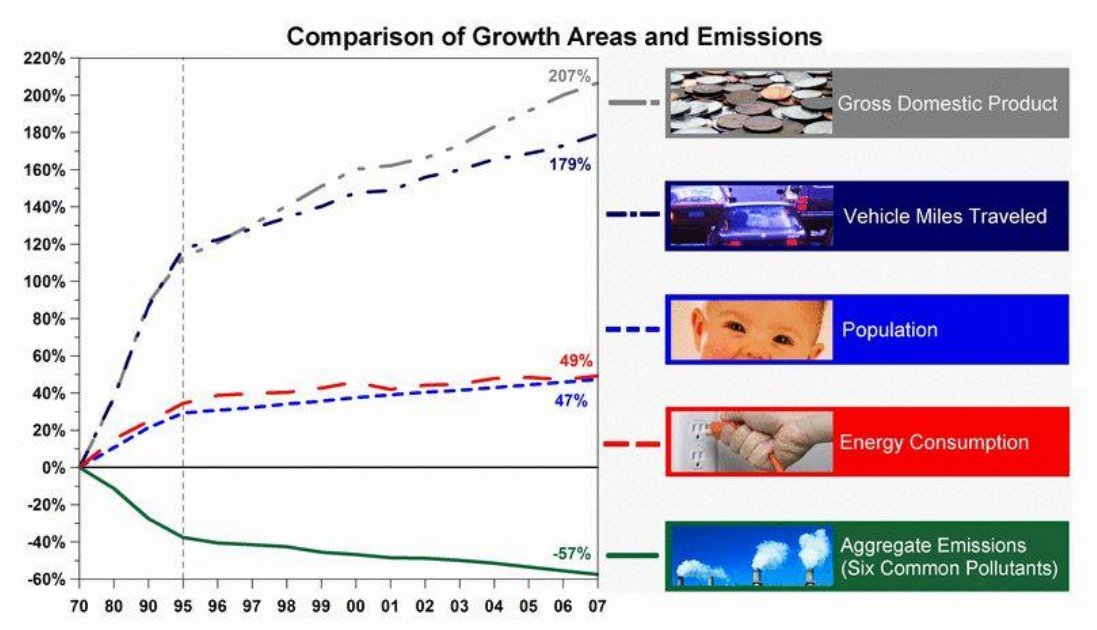
[1] See http://www.epa.gov/air/caaac/pdfs/2008_01_vision.pdf

its partners in the National Air Program should establish priorities that reflect a practical approach to these resource constraints.

The following section discusses some of the key needs and challenges associated with achieving the vision.

Four Decades of Progress toward the Vision

Significant progress has been made to improve air quality in the U.S. over the past several decades since the Clean Air Act was first established. Annual emissions estimates are one important indicator of the effectiveness of the National Air Program. The graph below shows that between 1980 and 2007, total emissions of the six principal air pollutants dropped by 52 percent while gross domestic product increased 124 percent, vehicle miles traveled increased 103 percent, energy consumption increased 30 percent, and the U.S. population grew by 33 percent. In addition, USEPA reports that from 1990 to 2002 emissions of air toxics declined by 35 percent. During the past several decades, progress has also been made in improving our understanding of how reductions in emissions translate into improvements in human and ecosystem health. There is a sense among many partners in the National Air Program, however, that the public is largely unaware of the extent of the improvement in air quality and the important health and welfare benefits that accompany these accomplishments.



Source: Comparison of Growth Areas and Emissions, 1980-2007: U.S. Environmental Protection Agency, 2009. (http://www.epa.gov/airtrends/sixpoll.html)

Progress has also been made in building a strong programmatic foundation for the National Air Program. The nation's air quality successes are the result of strong scientific, technical, policy, and programmatic systems and control infrastructure, as well as strong partnerships among various levels of government, the regulated community and the interested public. These systems, infrastructure, and partnerships provide a valuable platform for addressing air quality management challenges into the future.

Realizing the Vision: Key Needs and Challenges

Unfinished Business

Despite progress in improving air quality in the U.S., important challenges remain:

- Numerous areas are not meeting existing air quality standards and standards have not been set for some pollutants known to have adverse impacts;
- Air quality status can vary significantly both geographically and temporally, as can exposure and resulting health effects among different sub-populations and ecosystems;
- For some pollutants, there is growing concern that current standards are not sufficient to protect the public health, welfare, and environment; and
- Concern also exists regarding the potential for interactions among multiple air pollutants to pose more severe risks than these air pollutants pose individually.

The CAAAC recognizes that improvements in air quality may require significant investment. While cost-effective opportunities remain, the CAAAC also anticipates that the costs of securing additional air quality improvements among some source categories could increase as more cost-effective opportunities are exhausted. Furthermore, the CAAAC understands that cost-effectiveness and predictability with regard to required private investments for improving air quality are important to maintaining competitiveness and economic vitality among U.S. businesses. The CAAAC does see, however, substantial opportunities for improving the speed, efficiency, and effectiveness of many existing programs and processes. Strategic efforts to improve National Air Program activities and processes can translate into more environmental protection, faster, at lower cost.

In this context of needs and constraints, the CAAAC agrees that available resources and air program activities should target air quality challenges that pose the greatest risk to human and ecosystem health. Clearly, however, there are differences in opinion among CAAAC members with regard to where to strike the balance between acceptable risk and acceptable cost or to the extent of scientific evidence needed to justify action. The CAAAC acknowledges that in the current National Air Program, litigation can drive allocations of resources and activity, trumping risk reduction as the driving factor more often than many would like.

Given the need to consider pollutants of the greatest risk in the National Air Program, it is important to consider the full range of sources of air pollutants. These sources include mobile sources and vehicle miles travelled (VMT), large stationary sources, area sources, and small sources, among others.

The CAAAC also recognizes the importance of moving toward a more comprehensive, integrated, multi-pollutant approach to air quality management in the U.S. Many of the recommendations referenced in this report echo and seek to address needs articulated by the National Academy of Sciences in its 2004 report, *Air Quality Management in the U.S.* Pursuing the vision and guiding principles discussed in this document is vital

Air Quality Management in the U.S.

Efforts are needed to move toward a more comprehensive, integrated, multi-pollutant approach to air quality management

to efforts to build a more robust air quality management system in the U.S.

Confronting the Challenge of Climate Change

Climate change is a major air quality challenge confronting the National Air Program's efforts to protect public health, welfare and the environment. The CAAAC believes that major legislation to address climate change at the national scale is both important and inevitable. Furthermore, the impacts of climate change have potential to adversely affect air quality, such as ozone formation. At the same time, efforts to reduce greenhouse gas emissions may create opportunities for the National Air Program. For example, carefully designing and implementing the shift to low-carbon patterns of energy production and use may also yield reductions in criteria and toxic air pollutant emissions. This energy transition must be designed carefully to avoid negative impacts in other environmental media, such as water and soil quality and hazardous waste generation.

In light of the U.S. Supreme Court decision in Massachusetts v. EPA, and the subsequent publication of the Advanced Notice of Proposed Rulemaking "Regulating Greenhouse Gases under the Clean Air Act," the CAAAC understands that EPA and the CAAAC will need to place a significant emphasis in future work on how to best implement climate policy, including eventual legislation. *This report does not, however, include comprehensive recommendations for addressing climate change*. As a result, some of the past CAAAC recommendations referenced in this document will need to be reconsidered in the context of comprehensive new legislation or EPA policy interpretation on climate change. In addition, new recommendations will be necessary to make significant progress toward the vision as it relates to climate change. The CAAAC firmly believes, however, that the vision and six guiding principles articulated in this document are fully relevant to guide any future efforts to address climate change.

The Challenge of Climate Change

Climate change is a major air quality challenge confronting efforts to protect public health, welfare, and the environment. The National Air Program must consider climate change at all levels of activity, while continuing to address other air quality challenges.

The CAAAC believes that the National Air Program needs to consider climate change at all levels of activity. Efforts to address climate change demand critical attention and concerted action; however, the CAAAC cautions USEPA and its partners against shifting to address climate change in a manner that neglects other pressing air quality challenges, such as those related to criteria air pollutants and air toxics. Substantial progress has been made in areas currently addressed by the Clean Air Act, but more work is needed. Given anticipated resource constraints, the National Air Program must aggressively seek emissions reduction opportunities that have significant co-benefits—improvements that can rapidly and cost-effectively reduce greenhouse gas emissions and criteria pollutants or air toxics.

The Future of the Clean Air Act

The Clean Air Act's primary purpose is "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." In achieving that goal, the Act tries to incorporate or balance several factors including (but not limited to) accountability, predictability, due process rights, flexibility, and enforceability.

The Act has provided for dramatic improvements in air quality in the U.S. over the past several decades. Further, the 1977 and 1990 Amendments to the Act demonstrate that the Act can change as new issues arise and lessons are learned.

While there is no consensus on amending the Clean Air Act, if Congress were to explore the possibility of further amendment to the Act, the CAAAC believes that it can play a valuable and productive role in advising the Administration and USEPA on how the various proposals might affect the primary purpose of the Act and the balance of factors described above.

It is important to note that this document does not include comprehensive recommendations for improving the Clean Air Act. In addition, some of the specific recommendations referenced in this document may need to be reconsidered in the context of potential changes to the Clean Air Act, as many past CAAAC recommendations have focused on improvements to the current system.

Guiding Principles and Recommendations for the National Air Program

This section discusses the six guiding principles the CAAAC has identified for the National Air Program. For each guiding principle, there is a set of priority recommendations that the CAAAC believes need to be addressed to make progress related to the guiding principle. A more detailed set of recommendations associated with each of the six guiding principles, based on past CAAAC recommendations, is listed in an attachment to this document.

1. Establish Clear Goals and Manage for Results and Accountability

Clear goals related to public and ecosystem health, welfare, and climate change are vital to the effective and efficient functioning of the National Air Program. Clear goals, complemented by performance measurement systems, enable partners in the National Air Program to assess progress, continually improve the effectiveness and efficiency of programs and processes, and demonstrate whether efforts and investments appropriately balance costs and benefits. The National Air Program should be a dynamic system that enables air program managers to target implementation to optimize benefits of investments. Given government and private sector resource constraints, routine assessments of the cost effectiveness of program interventions will be critical to ensuring that maximum air quality progress can be made with minimum burden. Air programs and partners will need to explore and develop mechanisms that afford programs the flexibility to adapt to new challenges and changing risks, while ensuring baseline levels of environmental protection and performance.

Recommendations

The CAAAC believes the following high priority recommendations are vital to improving efforts to establish clear goals and manage for results and accountability.

1.1 Strengthen efforts to establish and connect air quality management goals and desired public health, ecosystem health, welfare, and climate change outcomes. While decades of progress have been made in linking air quality management goals to public health outcomes, more progress is needed to systematically establish and regularly review the connections between air quality management goals and desired outcomes. For example, ecosystem health and welfare outcomes have received less attention in the establishment of air quality management goals, in part due to the sparser scientific understanding. In addition, current air quality management goals may not be adequately aligned with desired public health outcomes in some specific geographic locations and among some susceptible sub-populations. Furthermore, national efforts to address climate change should establish clear goals that have a clear and transparent link to desired outcomes. As scientific understanding of the connections between air quality and public and ecosystem health, welfare, and climate change outcomes improves, periodic reviews can help ensure that National Air Program goals are adequate to achieve the established desired outcomes.

The CAAAC has issued specific recommendations related to this topic, including:

- *Examine Current and Alternative Clean Air Related Policies and Programs to Enhance Protection of Ecosystems and Public Welfare*. (CAAAC AQM Phase I Recommendation #5.1 - Program Review to Improve Ecosystem Protection)

1.2 Improve performance measurement activities to support results-based management and accountability. While substantial progress has been made in recent years, attention to performance measurement varies widely throughout the National Air Program. Improved accountability mechanisms are needed to demonstrate that investments in air quality are achieving desired results. The USEPA Clean Air Markets Division acid rain program's efforts to report on progress illustrate how performance measurement can be effective for supporting both results-based management and program accountability. Efforts are needed to improve the quality and consistency of performance measurement activity at USEPA, and to better coordinate performance measurement among federal and state, local, and tribal (S/L/T) partners.

The CAAAC has issued specific recommendations related to this topic, including:

- *Track Air Quality Achievements and Evaluate Air Program Results.* (CAAAC AQM Phase I Recommendation #1.5 - Framework for Accountability)
- *Expand Accountability Assessments to Include Multipollutant Impacts.* (CAAAC AQM Phase I Recommendation #3.15 - Periodic Assessments to Track Progress)
- *Improve Accountability Mechanisms*. (CAAAC AQM Phase II Recommendation #3)

1.3 Improve the effectiveness, efficiency, and speed of National Air Program processes and activities through collaborative efforts and innovation. The CAAAC believes there are substantial opportunities to improve the efficiency and speed of many processes under the umbrella of the National Air Program without adversely affecting air quality. In some cases, limited staffing and resources in addition to backlogs of work inhibit progress. Strategic, collaborative efforts are needed to eliminate non-value-added activity from key processes and to foster continuous improvement. For example, several state air programs have successfully used Lean Six Sigma process improvement methods to dramatically reduce air permitting timeframes while enhancing the quality and clarity of issued air permits. Making real progress in this area will also require program managers to be receptive to experimenting with innovative approaches. Fostering continual improvement cultures will be critical to ensuring that air programs and processes are cost-effective and focused on results.

The CAAAC has issued specific recommendations related to this topic, including:

- *Improve the State Implementation Planning (SIP) Process.* (Multiple recommendations in the CAAAC AQM Phase I Report)
- *Improve the Agency's Technology Verification Program.* (Recommendations for Reducing Emissions from the Legacy Diesel Fleet - Cross-Sector Recommendation #5)
- *Improve Air Permitting Program Implementation.* (Multiple recommendations in the CAAAC Title V Task Force Report)

2. Use Appropriate Tools Including Innovative Approaches

National Air Program partners should draw on a diverse collection of regulatory and non-regulatory tools, including innovative approaches, to make rapid progress toward air quality and National Air Program goals in a cost-effective manner. Careful consideration is needed to ensure that tools, including regulatory, voluntary and partnership approaches, are deployed appropriately and at the right level of government.

Recommendations

The CAAAC believes the following high priority recommendations are vital to improving emissions reduction efforts.

2.1 Expand national and regional control strategies. Smart efforts are needed to target emissions reductions across numerous source categories, including through the expansion of national and regional control measures and the use of episodic controls. The role of USEPA in establishing and implementing national and regional emission-control measures should be expanded so that S/L/T partners can focus their efforts on local emission concerns.

The CAAAC has issued numerous specific recommendations related to this topic. For example, the AQM Phase I Report includes recommendations on the need for expanded control strategies related to diverse emission sources, including ocean-going vessels, locomotives, aircraft, architectural and industrial surface coatings, open burning, and cement manufacturing, among others.

2.2 Develop an integrated multipollutant program for criteria and hazardous air pollutants. Implementation planning by S/L/T partners should be changed to place greater emphasis on performance and results and to facilitate development of multipollutant strategies. Wherever possible, air program managers should pursue multi-pollutant and cross-media approaches. In this context, coordinated efforts are needed to remove barriers to multipollutant approaches. Current multipollutant planning pilot projects supported by USEPA should be expanded and lessons from these pilots should be incorporated into upcoming SIP revisions.

The CAAAC has issued specific recommendations related to this topic, including:

- *Encourage Regional and Multi-Pollutant Approaches to the Development of SIPs.* (CAAAC AQM Phase I Recommendation #3.12 - Regional Approaches to SIP Planning)
- *Encourage States to Address Multipollutant Impacts in SIPs*. (CAAAC AQM Phase I Recommendation #4.1 - SIPs to Address Multipollutant Impacts)
- *Develop Emission Standards to Explicitly Outline and Quantify Multipollutant Benefits and Disbenefits*. (CAAAC AQM Phase I Recommendation #4.2 - Multipollutant Benefits and Disbenefits in Standards Setting)

2.3 Rapidly develop and deploy effective programs and activities to encourage energy efficiency and use of renewable energy sources. New tools and approaches need to be rapidly developed, enhanced, and deployed to mitigate GHG emissions and address climate change. Creative efforts to spur energy efficiency and development of renewable energy resources can have substantial co-benefits, addressing both climate change and air quality challenges.

The CAAAC has issued specific recommendations related to this topic, including:

- *Encourage Pollution Prevention, Energy Efficiency and Renewable Energy and Other Programs that have Ancillary Air Quality Benefits.* (CAAAC AQM Phase II Recommendation #7)
- *Expand Energy Star Voluntary Programs to Reduce Residential Fossil Fuel Emissions*. (CAAAC AQM Phase I Recommendation #2.8 - Residential Fossil Fuel Combustion)
- *Overcome Potential Barriers to Clean Energy/Air Quality Integration*. (CAAAC AQM Phase II Recommendation #9)
- *Provide Incentives for Voluntary and Innovative Land Use, Energy, and Transportation Approaches*. (CAAAC AQM Phase II Recommendation #10)

3. Conduct Sound Research and Use Information Effectively

Strong scientific research, measurement, and monitoring infrastructure is essential to achieve the vision for the National Air Program and to ensure that resources are cost-effectively deployed to reduce risk to public and ecosystem health. Sound research, emissions measurement, and monitoring are also critical to effective performance measurement, supporting both results-based management and program accountability mechanisms.

Recommendations

The CAAAC believes the following high priority recommendations are vital to improving efforts to conduct sound research and use information effectively.

3.1 Improve emissions measurement, reporting and inventories, including emission factors and estimation methods. More work is needed to improve the availability, accuracy, and consistency of emission factors and emission estimation methods. Efforts are also needed to improve how emissions information is collected, organized and included in emission inventories. These efforts are vital to improving air quality assessments and tracking of progress.

The CAAAC has issued specific recommendations related to this topic, including:

- *Improve Emissions Measurements and Reporting.* (CAAAC AQM Phase I Recommendation #1.1 - Emissions Measurements and Reporting)
- *Improve Emissions Factors and Emission Estimation Methods*. (CAAAC AQM Phase I Recommendation #1.2 - Emissions Factors and Estimation Methods)

3.2 Strengthen research related to air quality and its connections to public and ecosystem health, welfare, and climate change outcomes. Efforts and investments in scientific research are needed to better understand air chemistry and how air quality affects public and ecosystem health and welfare. In particular, more information is needed on air quality exposure and health impacts in specific geographic locations and among susceptible sub-populations. Better understanding of urban and rural differences in emissions, air quality, and impacts on public health, welfare, and

ecosystems is also needed. Credible, peer-reviewed scientific research is vital to enabling the National Air Program to establish goals and standards based on sound science, and to understand how changes in emissions and ambient pollutant concentrations ultimately link to public and ecosystem health risk and outcomes.

The CAAAC has issued specific recommendations related to this topic, including:

- *Improve Environmental and Health Data.* (CAAAC AQM Phase II Recommendation #1)

3.3 Expand and improve air-related monitoring. More comprehensive air monitoring infrastructure is needed to adequately support results-based management and program accountability. While significant air quality monitoring and modeling information is currently available, there are significant gaps in our information on the status of air quality in many parts of the U.S. For example, although some progress has been made, monitoring data on air toxics concentrations are relatively limited and/or variable. Air-related monitoring enables National Air Program managers to better understand how regulatory and policy interventions translate into improvements in air quality and human and ecosystem health outcomes. Ambient air quality monitoring also plays a critical role in assessing the performance of air quality models.

While air monitoring budgets are often attractive targets when resources are tight, air monitoring provides the foundation for the National Air Program. Improved coordination between federal and S/L/T partners can ensure that redundancies are eliminated and that new, integrated, multipollutant monitoring initiatives are cost-effective. A key challenge is that ambient air quality monitoring programs are expensive and provide limited spatial information. Investments are also needed to develop new monitoring techniques and technologies that are more accurate and cost-effective.

The CAAAC has issued specific recommendations related to this topic, including:

- *Promote and Improve Integrated, Multipollutant Monitoring*. (CAAAC AQM Phase I Recommendation #1.4 – Multipollutant Monitoring)

3.4 Improve the quality and accessibility of information available to support air quality management decision-making. Efforts are needed to improve the usefulness and timeliness of air quality information to support better decision-making among National Air Program partners. Continued investments in data management and data exchange among federal and S/L/T partners can provide a sound information infrastructure to support the National Air Program. At the same time, improvements are needed in the ability to capture and share meta-data related to assumptions, uncertainty, and other factors to increase the utility of air-related data and information.

4. Build Capacity among Government Partners for Effective Implementation

To achieve substantial improvements in air quality, government co-regulators must have sufficient resources—including staff, systems and equipment, and budgets—to effectively and efficiently manage and implement their programs. Capacity building and maintenance within the government air program will be extremely challenging over the next several years, as government agencies face unprecedented funding and resource challenges due to current economic conditions. At the same time, government air programs are being

asked to take on significant additional challenges, such as climate change and multipollutant impacts, which may spread existing budgets and staff resources increasingly thin. Sound investments, coupled with efforts to work smarter and improve processes, are needed to ensure that government partners are adequately equipped to address pressing air quality and climate change challenges.

Recommendations

The CAAAC believes the following high priority recommendations are vital to building capacity among government partners to achieve the vision for the National Air Program.

4.1 Provide timely guidance and rule implementation support to S/L/T partners. USEPA should play a greater role in supporting implementation of air program rules and initiatives by S/L/T partners, focusing more attention on providing guidance, training, and other implementation support activities. USEPA must expand the focus of its air program activities beyond the standard-setting process to include support for effective implementation. Timely guidance, training, web resources, and "toolkits" can prevent redundant activity across many partners and help ensure successful implementation.

The CAAAC has issued specific recommendations related to this topic, including:

- *Prepare Guidance for Local (Urban-Scale) Emission Control Measures.* (CAAAC AQM Phase I Recommendation #2.9 - Guidance for Local Control Measures in Key Sectors)
- *Evaluate and Improve Timelines for SIP Guidance/Implementation Rules.* (AQM Phase I Recommendation #3.5 - Timely Guidance)

4.2 Increase resources and funding to support effective program implementation by government partners. Increases in funding are needed to enable USEPA and S/L/T air program partners to effectively address pressing air quality and climate change challenges and risks that have potential to significantly and adversely affect human and ecosystem health. In addition, creative approaches to funding may be needed to supplement conventional budget allocations.

4.3 Invest in efforts to hire, retain, and train high quality staff at government partners in the National Air Program. Many government air programs will likely face significant challenges in attracting and retaining skilled staffs as waves of air program personnel retire in the coming years. Government air program partners would be well served to develop human capital strategies to help ensure that air programs are equipped with adequate human resources to effectively implement needed programs. Coordinated efforts are also needed to implement the Joint Training Strategy, in order to address S/L/T and USEPA air program training needs in a consistent, cost-effective manner.

5. Build a Better and Broader Partnership

Strong and diverse partnerships are needed to address many of the important challenges facing the National Air Program. The CAAAC recognizes the special relationship among co-regulators, including the EPA, tribal, state, and local government agencies. While the partnership among government agencies is strong in some areas, there is room for improvement in other areas. Effective partnership requires early engagement on issues and coordinated and collaborative planning.

Air programs will need to increasingly partner with organizations that can enhance understanding of how air quality affects outcomes related to public health, ecosystem health, welfare, and climate change. Air programs will also need to expand partnerships with organizations that can help implement efforts to reduce emissions in diverse areas such as energy efficiency, renewable energy, vehicle miles traveled, and land use. International partnerships will also need to be expanded and deepened to address challenges such as climate change and long-range transport of air pollution. Finally, there is significant opportunity to develop and expand partnerships that connect government, business, and non-governmental organizations to tackle air quality and climate change challenges in creative ways.

Recommendations

The CAAAC believes the following high priority recommendations are vital to building a better and broader partnership to achieve the vision for the National Air Program.

5.1 Clarify roles and improve collaboration and coordination between USEPA and S/L/T partners. USEPA and S/L/T partners should work to jointly identify opportunities for clarifying roles and improving collaboration and coordination related to the National Air Program. In some cases, such as SIP development, it may be important to re-align responsibilities and authorities to ensure that implementation is managed and executed at the appropriate level of government.

The CAAAC has issued specific recommendations related to this topic, including:

- *Encourage Federal and State Partnerships to Identify and Pursue Emissions Reductions from Important Source Categories.* (CAAAC AQM Phase I Recommendation #3.13 - Federal and State Partnership)
- *Improve the Priority Setting Process*. (CAAAC AQM Phase II Recommendation #2)

5.2 Strengthen and expand partnerships to improve understanding of the connections between air quality and human health and ecosystem health outcomes. Air programs need to deepen and expand partnership with organizations that can enhance understanding of how air quality affects outcomes related to public health, ecosystem health, welfare, and climate change. Partnerships with the U.S. Centers for Disease Control and other public health agencies and organizations, such as the Environmental Public Health Tracking Network, should be continued and expanded to improve understanding of air quality and public health connections. USEPA should expand partnerships with the U.S. Forest Service, the National Park

Service, and other agencies and organizations to improve understanding of ecosystem health and welfare outcomes.

The CAAAC has issued specific recommendations related to this topic, including:

- *Improve Environmental and Health Data.* (CAAAC AQM Phase II Recommendation #1)

5.3 Strengthen and expand partnerships to improve implementation of air emission reduction strategies. To address climate change, air toxics, and criteria pollutant challenges, air program partners will increasingly need to work with organizations and industry focusing on transportation, land use, energy, and other areas that affect emissions. New and creative partnerships will be particularly important to influence the behaviors of individuals, households, and other entities not conventionally addressed by air quality management programs. Expanded efforts are also needed to provide training and technical assistance for regulated entities and industry partners on regulatory compliance and air quality management topics that relate to industry's facilities and operations.

The CAAAC has issued specific recommendations related to this topic, including:

- *Integrate Air Quality Planning into Land Use, Transportation and Community Development Plans.* (CAAAC AQM Phase II Recommendation #5)
- *Support Transportation and Land Use Scenario Planning.* (CAAAC AQM Phase II Recommendation #6)

6. Educate and Involve the Public

The need for an informed and engaged public is rapidly becoming a pivotal element of the National Air Program. Individuals can play a major role both in taking steps to reduce their own risk related to air quality and in reducing their own emission "footprint." An informed and involved public can also assist National Air Program partners in understanding and addressing air quality-related needs, including environmental justice issues. Finally, an informed and engaged public can assist National Air Program partners in affirming the importance of investments and actions to improve air quality in the U.S. and to confront climate change challenges.

Recommendations

The CAAAC believes the following high priority recommendations are vital to educating and involving the public to support progress toward the National Air Program vision.

6.1 Improve the quality and availability of public information on air quality and activities of the National Air Program. Improved efforts are needed to communicate with the public about past successes and future challenges facing the National Air Program. While the Internet has dramatically increased the public accessibility of information on air quality and air program activities, creative new efforts are needed to package information and communicate in ways that reach and influence the public. For example, public information efforts such as AIRNow can play a vital role in equipping the public to reduce health risks associated with exposure to air contaminants. Air programs may benefit from communications lessons learned in fields such as public

health. For example, social marketing methods may provide ideas for how to communicate air-related messages and information closer to the point where decisions are made. USEPA's Energy Star Program's product certification and labeling efforts provide a useful example of ways to influence consumer behaviors (e.g., purchasing of electronics) near key decision points. Effective communication of air quality risks and programs can also build public constituencies needed to support program funding and action. Expanded efforts are needed to identify opportunities for creatively communicating with the public.

The CAAAC has issued specific recommendations related to this topic, including:

- *Develop Options for Effective Communication to Build Support with Constituencies. (*CAAAC AQM Phase I Recommendation #3.8 - Effective Communication with Constituencies)
- *Communicate Co-Benefits Associated with Innovative Measures*. (CAAAC AQM Phase I Recommendation #3.9 - Co-Benefits of Innovative Measures)

6.2 Equip and enable the public to productively engage in National Air Program decision-making processes. Air program managers often point to very low levels of public participation in many air quality management public involvement processes, such as public review and comment opportunities in air permitting. One must be careful, however, interpreting these observations. The public may not be effectively equipped to participate in these opportunities. The format and timing of these opportunities may not fit well in the busy, time-constrained lives that many people lead. To ensure that investments in public involvement opportunities are well spent by all involved, new efforts are needed to assess how National Air Program partners can better support productive public involvement in important air quality management processes.

6.3 Spur public action and participation in emissions reduction efforts. Substantial opportunities exist to leverage public interest in addressing climate change and air quality challenges to spur individual action. Creative informational and communication techniques can be used to educate and enlist individuals and households in taking action to reduce air emissions. Challenges, pledges, community-based initiatives, and supporting tools can support the public in being a more active partner in achieving National Air Program goals.

The CAAAC has issued specific recommendations related to this topic, including:

- *Accelerate Education and Outreach Related to Reducing Emissions from the Legacy Diesel Fleet for Maximum Benefit.* (CAAAC Recommendations for Reducing Emissions from the Legacy Diesel Fleet-Recommendation #4)

Future Directions

The CAAAC is committed to helping USEPA and its partners in the National Air Program chart and implement a future that is responsive to this vision and these guiding principles. There are clearly differences of opinion among partners in the National Air Program, such as in where to strike the balance between acceptable risk and acceptable cost or regarding the extent of scientific evidence needed to justify action. Despite these differences, however, there is remarkable convergence around the principles that should guide our National Air Program and future directions for the Clean Air Act. The CAAAC looks forward to working with USEPA in its efforts to advance the National Air Program.

Overcoming Barriers and Looking to the Future

The CAAAC recognizes that a variety of factors have prevented or limited implementation of prior recommendations. These barriers include:

- Perceived and/or real limitations in the Clean Air Act to effectively and efficiently address current challenges;
- Litigation or concern over potential legal challenges;
- Institutional resistance to change; and
- Lack of funding and/or insufficient staff resources.

Window of Opportunity

The stakes for our economy, our health, and our environment are too great to let this opportunity pass

While these barriers may not disappear in the coming years, the CAAAC believes that we have a unique window of opportunity to vigorously address our air quality challenges in a collaborative, constructive manner that can lessen these barriers. As the nation moves to address climate change, there is a unique opportunity to revisit our National Air Program and the Clean Air Act to chart a course for success in the 21st century. Frank and transparent deliberations on ways to achieve the vision and pursue the guiding principles, improve the National Air Program, and revise the Clean Air Act may help diverse stakeholders reach agreement in areas not previously imagined. The CAAAC believes it has a unique role to play in advancing these efforts, and the CAAAC looks forward to working with USEPA on these important issues.

Next Steps

The CAAAC urges next steps in two important areas. First, there are steps that the CAAAC should take to make this Vision and Guiding Principles effort and document a foundational element of the CAAAC's activities. Second, the CAAAC urges USEPA to take next steps related to this Vision and Guiding Principles document.

Actions for the CAAAC

The CAAAC charges itself, with concurrence from USEPA, with undertaking the following activities related to this Vision, Guiding Principles, and Recommendations document:

1. **Annual review and update of the vision, guiding principles and recommendations**. The CAAAC commits to review the vision and guiding principles annually and modify them as necessary to ensure that they continue to reflect the CAAAC's best thinking.

2. **Identification of important areas where new CAAAC advice and recommendations may be beneficial**. The Vision and Guiding Principles document should be used to support the identification of areas where the CAAAC needs to be able to productively advise USEPA with the development of updated or more detailed recommendations. At its January 2009 meeting, the CAAAC voted to recommend to EPA that the Agency form a work group to advise the Agency on issues related to climate change. During the meeting, the CAAAC also considered addressing the future of the Clean Air Act, although no decisions were made to recommend formation of a work group to address this topic.

3. **Assessment of progress for the National Air Program**. The CAAAC can play a useful role in assessing progress by USEPA and its partners in achieving the vision and implementing the guiding principles. The CAAAC will develop a periodic "report card" to help USEPA and its partners acknowledge progress and identify areas that may need more concerted attention or investment.

Actions for the USEPA

The CAAAC respectfully requests that the USEPA take the following actions.

1. **Review and respond to this Vision, Guiding Principles, and Recommendations document**. The CAAAC requests comments and responses to this Vision and Guiding Principles document, and the recommendations contained in it, from USEPA staff and the new Administration. The CAAAC is committed to working with the new Administration to be a productive partner and advisor in charting future directions for the National Air Program. The CAAAC hopes that this Vision and Guiding Principles document will support an important, vigorous, and productive discussion.

2. **Respond to future updates to this Vision and Guiding Principles document as well as to the periodic assessments of progress made**. The CAAAC looks forward to USEPA's response to the CAAAC's periodic updates to this Vision and Guiding Principles document, and to working with the agency in conducting a periodic assessment of progress toward the vision and guiding principles.

Attachment 1: CAAAC Recommendations Organized by Guiding Principles

This attachment includes a complete set of recommendations that have been issued by the CAAAC to EPA over the past several years, organized by the guiding principle. The order of recommendation does not necessarily reflect CAAAC perspectives on the relative priority of these recommendations.

Guiding Principle	CAAAC Recommendations
1. Manage For Results and Accountability	• **Track Air Quality Achievements and Evaluate Air Program Results**. EPA, in conjunction with atmospheric scientists, health and ecosystem experts, S/L/Ts, and affected stakeholders, should undertake a systematic effort to track air quality achievements and evaluate air program results. This effort should begin by focusing on the progression and associations of air emissions as they interact and ultimately affect human health and the environment. In order to move beyond the current approach of relying predominantly on air quality measurements, we need to further develop and apply the capacity to monitor, assess, and report on how changes in emissions impact air quality, atmospheric deposition, exposure, and effects on human health and ecosystems. Emphasis should be placed on developing and enhancing appropriate health and ecosystem indicators, benchmarks, and subsequent analyses within this overarching accountability framework. (CAAAC AQM Phase I Rec #1.5 - Framework for Accountability)
	• **Improve Accountability Mechanisms and Expand Accountability Assessments to Include Multipollutant Impacts.** (CAAAC AQM Phase II Rec #3 and CAAAC AQM Phase I #3.15 - Periodic Assessments to Track Progress) ○ **Improve Accountability Mechanisms.** Improve accountability by systematically monitoring progress and evaluating results, by ensuring that data collection is meaningful and that feedback loops exist so actual environmental results inform the future allocation of resources and the establishment of priorities. (CAAAC AQM Phase II Rec #3) ○ **Expand Accountability Assessment to Include Multipollutant Impacts**. S/L/T and EPA should conduct periodic assessments to ensure that areas are on track to meet NAAQS, air toxics, and visibility goals, and make mid-course adjustments, as necessary. Resource levels committed to emissions reductions should also be assessed. (CAAAC AQM Phase I #3.15 - Periodic Assessments to Track Progress)
	• **Take Climate Change into Account**. Take climate change into account in air quality management strategies. EPA should undertake a comprehensive assessment of the implications of climate change on future air quality objectives and include other federal agencies and climate change scientists in that endeavor. EPA should assist states in the development of annual greenhouse gas emission inventories. (CAAAC AQM Phase II Rec #4) ○ **Quantify Potential for Greenhouse Gas Co-benefits and Disbenefits of Emissions Reduction Measures.** EPA should assist States and localities in quantifying the potential for greenhouse gas co-benefits and disbenefits of emissions reduction measures primarily designed to address ozone, PM2.5, regional haze and air toxics. (CAAAC AQM Phase I #4.3 - Greenhouse Gas Co-benefits and Disbenefits)
	• **Improve the SIP Process.** Implementation planning at the state and local levels should be changed to place greater emphasis on performance and results. (NRC Recommendation 3) ○ **Align SIP Submittal Dates for Ozone, PM2.5, and Regional Haze**. Because

Guiding Principle	CAAAC Recommendations
	ozone, PM2.5, and regional haze SIPs have similar elements and are likely to contain similar control strategies, EPA, S/L/T and other stakeholders should strive to align the submittal dates of the three SIPs. This recommendation is not intended to suggest changes to any deadlines for attainment or implementation of control strategies, or to imply that a single SIP should be required for ozone, PM2.5, and regional haze. It is further recommended that, in the future, EPA should align designation dates as appropriate to promote multipollutant SIP development. (CAAAC AQM Phase I #3.1 - Align SIP Submittal Dates) ○ **Develop and Implement a Protocol for SIP Development and Processing.** Each State should work with the appropriate EPA Regional Office to develop and implement a protocol for SIP development and processing that would lay out responsibilities, expectations, and timelines for all parties. While a model protocol should be developed, the EPA Regional Office and each State should have the flexibility to design a protocol tailored to their specific needs. (CAAAC AQM Phase I #3.2 - Protocol for SIP Development) ○ **Establish a *De Minimis* Level for SIP Revisions and Streamline Processing of Revisions**. For the SIP approval/disapproval phase of the air quality management process, EPA should establish a *de minimis* level for SIP revisions and streamline the processing of these revisions by the use of "letter approvals" or similar expedited procedures signed by the Regional Administrator. EPA should, in consultation with S/L/T and other stakeholders, develop a listing of the types of SIP actions eligible for streamlined processing. (CAAAC AQM Phase I #3.4 - Streamline Minor SIP Revisions) ○ **Develop an Alternative SIP Public Hearing Process.** EPA should work with States and Tribes to develop a model regulation that would require a public hearing for SIP revisions only if one is requested after public notice. This recommendation is meant only to eliminate those hearings that no one attends, rather than to restrict public comment in any way. (CAAAC AQM Phase I #3.6 - Avoid Unnecessary Public Hearings) ○ **Facilitate Redesignation Process for Certain Areas.** For those areas that have not pursued and been granted redesignation when initially eligible, and have continued to demonstrate violation-free ambient air quality data for several years, EPA should expedite the redesignation process. EPA should ensure that all Regions and States are aware of the simplified procedures. This recommendation is not intended to change the requirements for redesignation under the CAA. (CAAAC AQM Phase I #3.7 - Facilitate Redesignation Process for Certain Areas) ○ **Promote Weight-Of-Evidence Demonstrations for Both Planning and Implementation Efforts.** In order to move beyond the current approach of relying on air quality modeling, EPA, in conjunction with S/L/T and affected stakeholders, should modify its guidance to promote weight-of-evidence (WOE) demonstrations for both planning and implementation efforts. In particular, these demonstrations should reduce reliance on modeling data as the centerpiece for SIP/TIP planning, and should increase use of monitoring data and analyses of monitoring data, especially for tracking progress. (CAAAC AQM Phase I #3.14 - Weight-of-Evidence Demonstrations) ○ **Evaluate Averaging, Banking and Trading in the Gasoline Sulfur Program.** EPA should evaluate the averaging, banking, and trading provisions included in the Tier II gasoline sulfur regulation to see if they are effective. (CAAAC AQM Phase I #3.16 - Averaging, Banking and Trading in Gasoline Sulfur Program)
	• **Streamline the Agency's Technology Verification Program.** To ensure that the best technologies are made available as quickly as possible, the national technology verification process can be streamlined to move new technologies into the market. Work Group members are willing to assist EPA in verification process improvements, including working to assess the resources needed to carry-out the process. (Cross-

Guiding Principle	CAAAC Recommendations
	Sector Recommendation #5 - Recommendations for Reducing Emissions from the Legacy Diesel Fleet)
	• **Examine Current and Alternative Clean Air Related Policies and Programs by Enhancing Protection of Ecosystems and Public Welfare.** EPA should, in parallel with recommended scientific and technical work, begin now to examine current and alternative clean air related policies and programs to develop approaches that would advance protection of ecosystems from the adverse effects of air pollution. Alternatives that should be evaluated include a regional cap-and-trade program, protection of ecosystems based on critical loads, a State-wide planning program for protecting and enhancing air quality in areas that attain the NAAQS (including National Parks and Wilderness Areas). (CAAAC AQM Phase I #5.1 - Program Review to Improve Ecosystem Protection)
2. Use Appropriate Tools Including Innovative Approaches	• **Expand National and Multistate Control Strategies.** The role of EPA in establishing and implementing national and multistate emission-control measures should be expanded so that states can focus their efforts on local emission concerns. The most critical actions are: (1) expand federal emission-control measures especially for non-road mobile sources, area sources, and building and consumer products.; (2) emphasize technology-neutral standards for emission control; (3) use market-based approaches whenever practical and effective; (4) reduce emissions from existing facilities and vehicles; and (5) address regional transport problems by providing EPA with greater statutory responsibility to assess multistate air quality issues on an ongoing basis and the regulatory authority to deal with them in a regional context. (NRC Recommendation 2) ○ **Collect and Analyze Data Concerning Industrial, Commercial, and Institutional Boilers**. EPA should complete as soon as possible a review of the contributions from this category and the technical and economic feasibility of further controls, given the high priority assigned to this sector. EPA should then initiate development of a regional or national emissions control regulation for the category, or take alternative action consistent with the results of its analysis. (CAAAC AQM Phase I Rec #2.1 - Industrial, Commercial, and Institutional Boilers) ○ **Analyze Economic Feasibility of Further Controls on Industrial Surface Coatings**. EPA should complete as soon as possible a review of the contributions from this category and the technical and economic feasibility of further controls. EPA should then initiate development of a regional or national emissions control regulation for the category, or take alternative action consistent with the results of its analysis. (CAAAC AQM Phase I Rec #2.2 - Industrial Surface Coatings) ○ **Establish Minimum Performance Standards for Non-Industrial Solvents**. EPA should initiate rulemaking efforts to establish minimum performance standards (i.e., national rules) for this category using the volatile organic compound (VOC) content limitations contained in, and regulating the products covered by, the model rule developed by the Ozone Transport Commission. (CAAAC AQM Phase I Rec #2.3 - Non-Industrial Solvents (Consumer Products)) ○ **Establish Minimum Performance Standards for Architectural Coatings**. EPA should initiate rulemaking efforts to establish minimum performance standards (i.e., national rules) for this category using the VOC content limitations contained in, and regulating the products covered by, the model rule developed by the Ozone Transport Commission. (CAAAC AQM Phase I Rec #2.4 - Architectural Coatings) ○ **Reduce Emissions from Heavy-duty Diesel Engines**. EPA should reduce emissions from the existing fleet of heavy-duty diesel engines by employing a multi-pronged approach. (CAAAC AQM Phase I Rec #2.5 - Heavy-Duty Diesel Engines) ○ **Potential for Cleaning up Existing Fleet is Significant and Worth the**

Guiding Principle	CAAAC Recommendations
	Investment. (Cross-Sector Recommendation #1 - Recommendations for Reducing Emissions from the Legacy Diesel Fleet) ○ **Address Emissions from Ships, Locomotives, and Aircraft, as well as Mobile Source Air Toxics**. EPA should address emissions from ships, locomotives, and aircraft, as well as mobile source air toxics through national emissions standards. (CAAAC AQM Phase I #2.6 - Emissions from Ships, Locomotives, and Aircraft, and Mobile Source Air Toxics) ○ **Evaluate Emissions Reduction Strategies for Criteria Pollutants and Air Toxics in the Cement Manufacturing, Petroleum Refining, and Pulp and Paper Industries**. The cement manufacturing, petroleum refining, and pulp and paper industrial source categories are already under substantial regulation, but continue to be significant sources of pollutants and warrant further consideration by EPA. EPA should evaluate potential national or regional emissions reduction strategies for criteria pollutants and air toxics in these categories. This should include improving emissions inventories if necessary and assessing their impacts on nonattainment areas or other sensitive areas. EPA should carefully consider the cost-effectiveness of imposing additional controls as it determines whether additional emissions reductions are justified and should take action consistent with the results of this analysis. (CAAAC AQM Phase I #2.7 - Cement Manufacturing, Petroleum Refining, and Pulp and Paper) ○ **Further Develop the Residential Wood Smoke Reduction Initiative**. EPA should further develop the Residential Wood Smoke Reduction Initiative that includes working with S/L/T, industry, non-governmental organizations and others to support and facilitate the change-out of dirty, inefficient, "conventional" (pre-New Source Performance Standard or NSPS) woodstoves with new, cleaner, and more efficient heating appliances (e.g., EPA certified woodstoves). Concurrent with the development and implementation of change-out programs, EPA should commence efforts to revise the NSPS. (CAAAC AQM Phase I #2.10 - Residential Wood Smoke) ○ **Encourage Vigorous Control of Open Burning**. EPA should work with S/L/T to encourage more vigorous control of open burning, especially in, and adjacent to, counties with Class I areas and counties classified as nonattainment for fine particles or ozone. (CAAAC AQM Phase I #2.11 - Open Burning) ○ **Reduce Emissions from High-emitting Gasoline Vehicles.** EPA and S/L/T should reduce emissions from high-emitting gasoline vehicles that are believed to contribute a high fraction of mobile source emissions. (CAAAC AQM Phase I #2.12 - High-Emitting Gasoline Vehicles) ○ **Retain AQM Conformity**. Conformity should be retained as part of the nation's AQM system. (CAAAC AQM Phase I #2.13 - Conformity)
	• **Develop an Integrated Multipollutant Program for Criteria and Hazardous Air Pollutants.** Implementation planning at the state and local levels should be changed to place greater emphasis on performance and results and to facilitate development of multipollutant strategies. Critical actions include: (1) transform the SIP into an AQM plan; (2) reform the planning and implementation process; (3) develop a system to set priorities for hazardous air pollutants; (4) institute a dynamic review of pollutant classification; (5) list potentially dangerous but unregulated air pollutants for regulatory attention; (6) address multiple pollutants in the NAAQS review and standard-setting process; and (7) enhance assessment of residual risk. (NRC Recommendations 3 and 4) ○ **Encourage Regional and Multi-Pollutant Approaches to the Development of SIPs**. For many areas, planning for new SIPs or major revisions to existing SIPs for two or more separate nonattainment areas that are both part of the same regional-scale air quality problem should be coordinated. If requested by a State,

Guiding Principle	CAAAC Recommendations
	EPA should work with the different nonattainment areas, Tribes and combinations of multistate organizations and other stakeholders, as appropriate, to assist in the development of regional approaches to planning. This could include technical assistance such as modeling, national or regional control strategies, model SIPs, and model rules as templates for S/L/T adoption. (CAAAC AQM Phase I #3.12 - Regional Approaches to SIP Planning) ○ **Encourage States to Address Multipollutant Impacts in SIP's**. For the SIPs States are required to submit over the next several years, EPA and S/L/T should promote the consideration of multipollutant impacts, including the impacts of air toxics, and where there is discretion, select regulatory approaches that maximize benefits from controlling key air toxics, as well as ozone, PM2.5, and regional haze. (CAAAC AQM Phase I #4.1 - SIPs to Address Multipollutant Impacts) ○ **Emission Standards to Explicitly Outline and Quantify Multipollutant Benefits and Disbenefits**. EPA should explicitly outline and quantify multipollutant benefits and disbenefits when setting emissions standards. (CAAAC AQM Phase I #4.2 - Multipollutant Benefits and Disbenefits in Standards Setting)
	• **Overcome potential barriers to clean energy/air quality integration and encourage P2, energy efficiency and renewable energy.** Analyze existing laws to determine the extent to which they can be used to encourage pollution prevention, energy efficiency, and renewable energy as they may be effective in reducing emissions (CAAAC AQM Phase II Rec #7). EPA should work with state, tribal, and local air agencies, energy organizations, and regional air quality planning organizations to overcome potential barriers to clean energy/air quality integration. (CAAAC AQM Phase II Rec #9) ○ **Expand Energy Star Voluntary Programs to Reduce Residential Fossil Fuel Emissions**. EPA should evaluate the potential for expanding the Energy Star voluntary program to gain additional criteria pollutant emissions reductions (as well as improve energy efficiency) from the residential fossil fuel sector. As part of this effort, EPA should continue to gather information on the characteristics of residential fossil fuel emissions and their contributions to nonattainment, and the magnitude and cost of potential emissions reductions under a voluntary program and/or expanded use of low-sulfur fuel. EPA should also coordinate with Regional Planning Organizations (RPOs) and companies that produce lower-emitting appliances to assess the potential for programs that promote the installation of such technologies. (CAAAC AQM Phase I #2.8 - Residential Fossil Fuel Combustion) ○ **Provide Incentives for Voluntary and Innovative Land Use, Energy, and Transportation Approaches**. The AQM process should include incentives (including, but not limited to, more flexible forms of credit, regulatory incentives and economic incentives) for innovative and voluntary land use, energy, and transportation technologies or approaches that provide air quality benefits. (CAAAC AQM Phase II Rec #10)
	• **Develop Programs to Reduce Public Demand for Polluting Activities.** Develop programs that focus on reducing public demand for polluting activities. Such programs could include incentive programs for encouraging use of lower-polluting activities, reduction programs, and tax and use restrictions. (CAAAC AQM Phase II Rec #11)
	• **Facilitate Expanded Use of Advanced Coal Technologies.** Identify the potential barriers and opportunities to create incentives under the Clean Air Act for the research, development, demonstration and deployment of advanced coal technologies, including carbon capture and sequestration. (CAAAC Advanced Coal Technology Recommendations)
	• **Expand the Use of Episodic Controls.** Expand the use of episodic control measures to help attain and maintain national ambient air quality standards in areas where all

Guiding Principle	CAAAC Recommendations
	reasonable continuous and seasonal control measures have already been required. (CAAAC AQM Phase II Rec #8)
	• **Encourage States' and Tribes' Efforts to Implement Innovative Measures, including Offering SIP/TIP Credit for "Bundled and Discounted" Measures**. ○ **Encourage States' and Tribes' Efforts to Implement Innovative Measures**. EPA should encourage States' and Tribes' efforts to implement innovative measures by providing enhanced flexibility, SIP/TIP credit guidance, technical support, and funding for innovative and voluntary programs. (CAAAC AQM Phase I #3.10 - Innovative and Voluntary Measures) ○ **Offer SIP/TIP Credit for "Bundled and Discounted" Measures**. EPA should incentivize innovative pollution control strategies by offering SIP/TIP credit for "bundled and discounted" measures. (CAAAC AQM Phase I #3.11 - SIP Credits for Bundled Innovative Measures)
	• **Improve Air Permitting Program Implementation.** Improve performance of the title V air operating permits program. (CAAAC Title V Task Force Recommendations, January 2008)
3. Conduct Sound Research and Use Information Effectively	• **Improve Emissions Measurements and Reporting, including Emissions Factors and Estimation Methods.** (CAAAC AQM Phase I Rec #1.1 - Emissions Measurements and Reporting and Rec #1.2 - Emissions Factors and Estimation Methods) ○ **Improve Emissions Measurements and Reporting.** EPA, in conjunction with S/L/Ts and affected stakeholders, should pursue improved emissions measurements and reporting to enhance emissions databases for more accurate air quality assessments and tracking of progress. (CAAAC AQM Phase I Rec #1.1 - Emissions Measurements and Reporting) ○ **Improve Emissions Factors and Emission Estimation Methods.** Where emissions measurement-based information is impractical to obtain for air quality assessments, or where improved projections are needed, EPA, in conjunction with S/L/T and affected stakeholders, should improve emissions factors and emission estimation methods. (CAAAC AQM Phase I Rec #1.2 - Emissions Factors and Estimation Methods)
	• **Improve Environmental and Health Data.** Improve the accuracy, robustness, and availability of environmental and health data to (1) enable more complete characterization of air quality, emissions, and environmental and health outcomes and (2) facilitate the assessment and characterization of relative risks. (CAAAC AQM Phase II Rec #1)
	• **Promote and Improve Integrated, Multipollutant Monitoring.** EPA, in conjunction with S/L/Ts and affected stakeholders, should promote and improve integrated, multipollutant monitoring. (CAAAC AQM Phase I Rec #1.4 – Multi-pollutant Monitoring)
	• **Reduce Uncertainty In Emissions Inventories and Air Quality Modeling.** EPA, in conjunction with S/L/Ts and affected stakeholders, should quantify and take actions to reduce uncertainty in emissions inventories and air quality modeling applications, provide guidance for incorporating uncertainty assessments into SIP planning, and improve communication of uncertainty to decision-makers. (CAAAC AQM Phase I Rec #1.3 – Uncertainty in Emissions Inventories and Modeling)

4. Enable Implementation by Government Partners	• **Evaluate and Improve Timelines for SIP Guidance/Implementation Rules.** EPA guidance should be issued in sufficient time for States to meet their SIP development deadlines. EPA should involve S/L/Ts and other appropriate parties in its guidance development process. In cases where guidance is delayed, EPA should take into consideration States' efforts to meet deadlines without the benefit of the appropriate policy guidance. (AQM Phase I #3.5-Timely Guidance)
	• **Offer Range of Funding Options and Incentives (grants, loans, rebates, tax incentives, etc.).** Given the diversity of applications, it is important to offer a range of funding options and incentives for maximum impact. Grants, loans, rebates, and tax incentives are common funding mechanisms across all sectors. (Cross-Sector Recommendation #3 - Recommendations for Reducing Emissions from the Legacy Diesel Fleet)
	• **Prepare Guidance for Local (Urban-Scale) Emission Control Measures.** EPA, in conjunction with S/L/Ts and affected stakeholders, should prepare guidance for local (urban-scale) control measures to support the upcoming round of ozone and PM2.5 SIPs, and, if possible, optimize multipollutant control benefits and opportunities for reducing criteria and toxic air pollutants. (CAAAC AQM Phase I #2.9 - Guidance for Local Control Measures in Key Sectors)
	• **Develop Website Containing Interpretations of Rules and other SIP/TIP Approval-related Issues.** EPA should develop a website, similar to the Best Available Control Technology (BACT)/Lowest Achievable Emission Rate (LAER) clearinghouse, containing interpretations of rules and other SIP/TIP approval-related issues. This website could contain both policy and/or technical information depending on how it is developed. Each EPA Regional Office should develop a website, to be updated every 12 months on or about October 1, that identifies and provides links to all statutory and regulatory requirements in the federally approved SIP, including associated State and federal legal citations and effective dates. (CAAAC AQM Phase I #3.3 - Clearinghouse of Approved SIPs)
5. Build a Better and Broader Partnership	• **Encourage Federal and State Partnerships to Identify and Pursue Emissions Reductions from Important Source Categories.** EPA should participate with S/L/Ts in the SIP/TIP development process to identify and pursue emissions reductions from important source categories, especially those that only the federal government has the ability to address, such as federal and international sources. The level of control sought from these sources should be commensurate with their impact on the nonattainment area. As warranted by the nature of the source, control strategy development should be carried out by S/L/Ts working either directly with EPA or with EPA and other federal agencies. For attainment demonstration purposes, States should be able to take appropriate credit for anticipated reductions from these sources (whether the reductions are from regulatory or incentive programs) so long as the control strategy and its anticipated impact are found to be consistent with EPA regulation and guidance. (CAAAC AQM Phase I #3.13 - Federal and State Partnership)
	• **Establish an Inter-agency Liaison Group to Coordinate Land Use, Energy, Transportation, Climate Change, and Air Goals.** (CAAAC AQM Phase II Rec #12)
	• **Integrate Air Quality Planning into Land Use, Transportation and Community Development Plans, including Support for Transportation and Land Use Scenario Planning.** (CAAAC AQM Phase II Rec #5 and #6) ○ **Integrate Air Quality Planning into Land Use, Transportation and Community Development Plans.** Local planning organizations should integrate air quality planning into their land use, transportation and community development plans when high population growth is occurring in order to prevent significant deterioration of air quality. (CAAAC AQM Phase II Rec #6) ○ **Support Transportation and Land Use Scenario Planning.** The AQM Process

	should support transportation and land use scenario planning at the multijurisdictional, state, tribal, and local levels and other means to identify emissions reduction opportunities and improve tribal and local engagement. (CAAAC AQM Phase II Rec #5)
	• **Clarify Agency Roles Related to National and Multistate Control Strategies.** EPA's role in establishing and implementing national and multistate emission-control measures should be clarified and expanded so that S/L/Ts can focus their efforts on local emission concerns. (NRC Recommendation 2)
	• **Improve the Priority Setting Process.** Improve the priority setting process by creating mechanisms to systematically realign resources and regulatory focus toward areas of greatest health and environmental risk. (CAAAC AQM Phase II Rec #2)
6. Educate and Involve the Public	• **Develop Options for Effective Communication to Build Support with Constituencies.** EPA, along with S/L/Ts, should develop a menu of options for effective communication to build support with a wide variety of constituencies for clean air plans at the S/L/T level. (CAAAC AQM Phase I #3.8 - Effective Communication with Constituencies)
	• **Accelerate Education and Outreach Related to Reducing Emissions from the Legacy Diesel Fleet for Maximum Benefit.** Education and outreach is essential to spread the word and maximize impact. (Cross-Sector Recommendation #4 - Recommendations for Reducing Emissions from the Legacy Diesel Fleet)
	• **Communicate Co-Benefits Associated with Innovative Measures**. EPA and S/L/Ts should work collectively to communicate the co-benefits associated with innovative measures. (CAAAC AQM Phase I #3.9 - Co-Benefits of Innovative Measures)